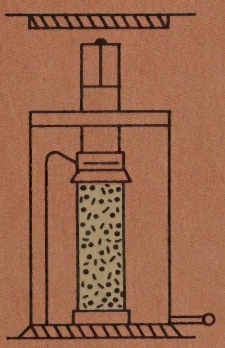
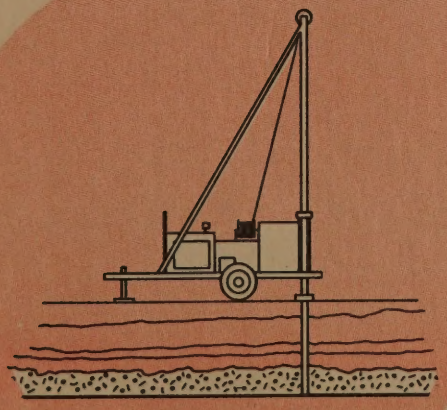
STATE OF NEW YORK
DEPARTMENT OF TRANSPORTATION

SOIL MECHANICS BUREAU

JULY 1987





STA-WAL PERFORMANCE

ROUTE 7 OVER THE B&M RAILROAD
TOWN OF HOOSIC
RENSSELAER COUNTY
PIN 1162.00, D251198

SM 238b (1/73)

ROUTE 7 OVER THE B & M RAILROAD

TOWN OF HOOSIC

RENSSELAER COUNTY

PIN 1162.00, D251198

STA-WAL PERFORMANCE

Prepared By

New York State Department of
Transportation

Soil Mechanics Bureau

July 1987

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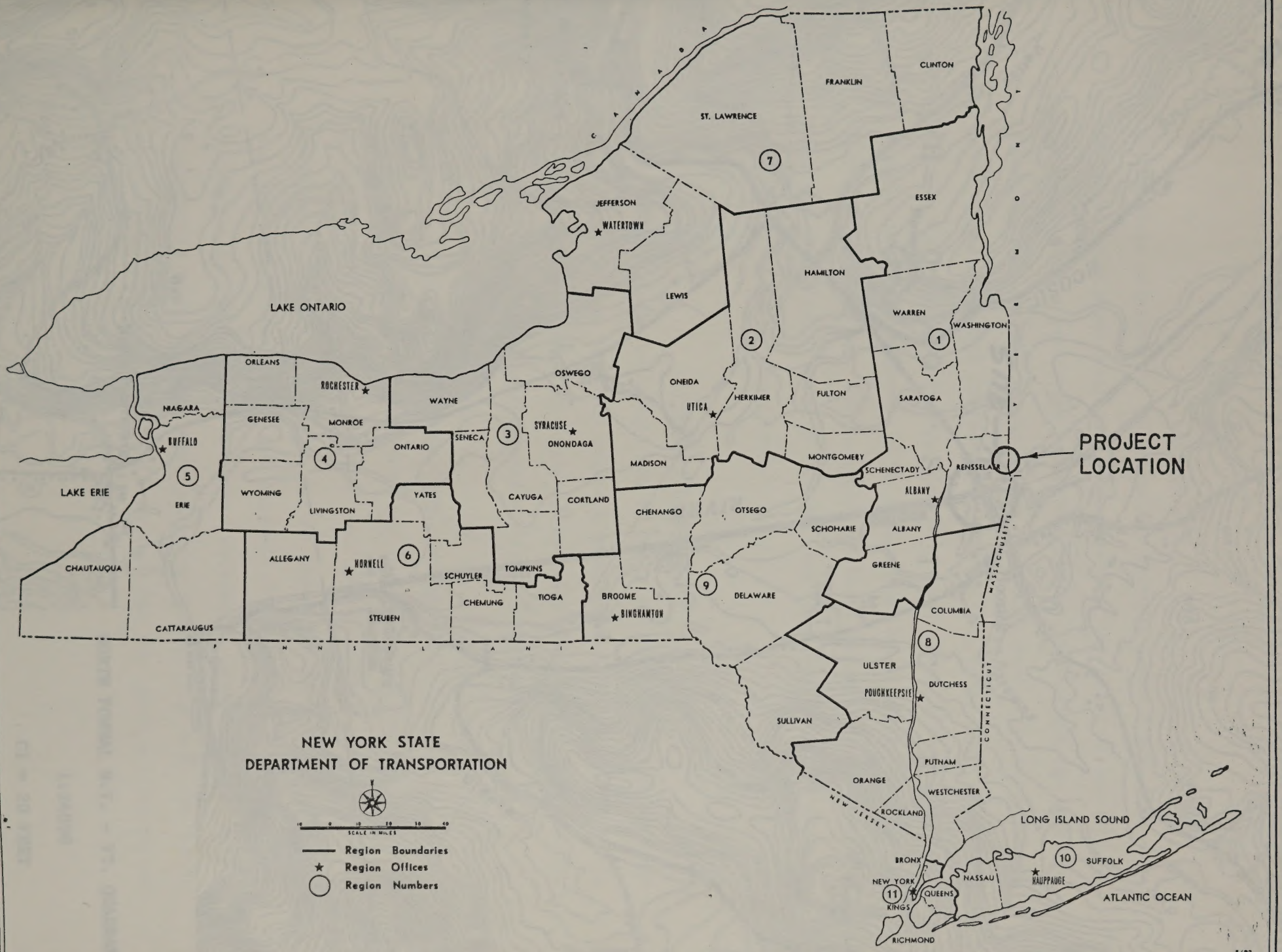
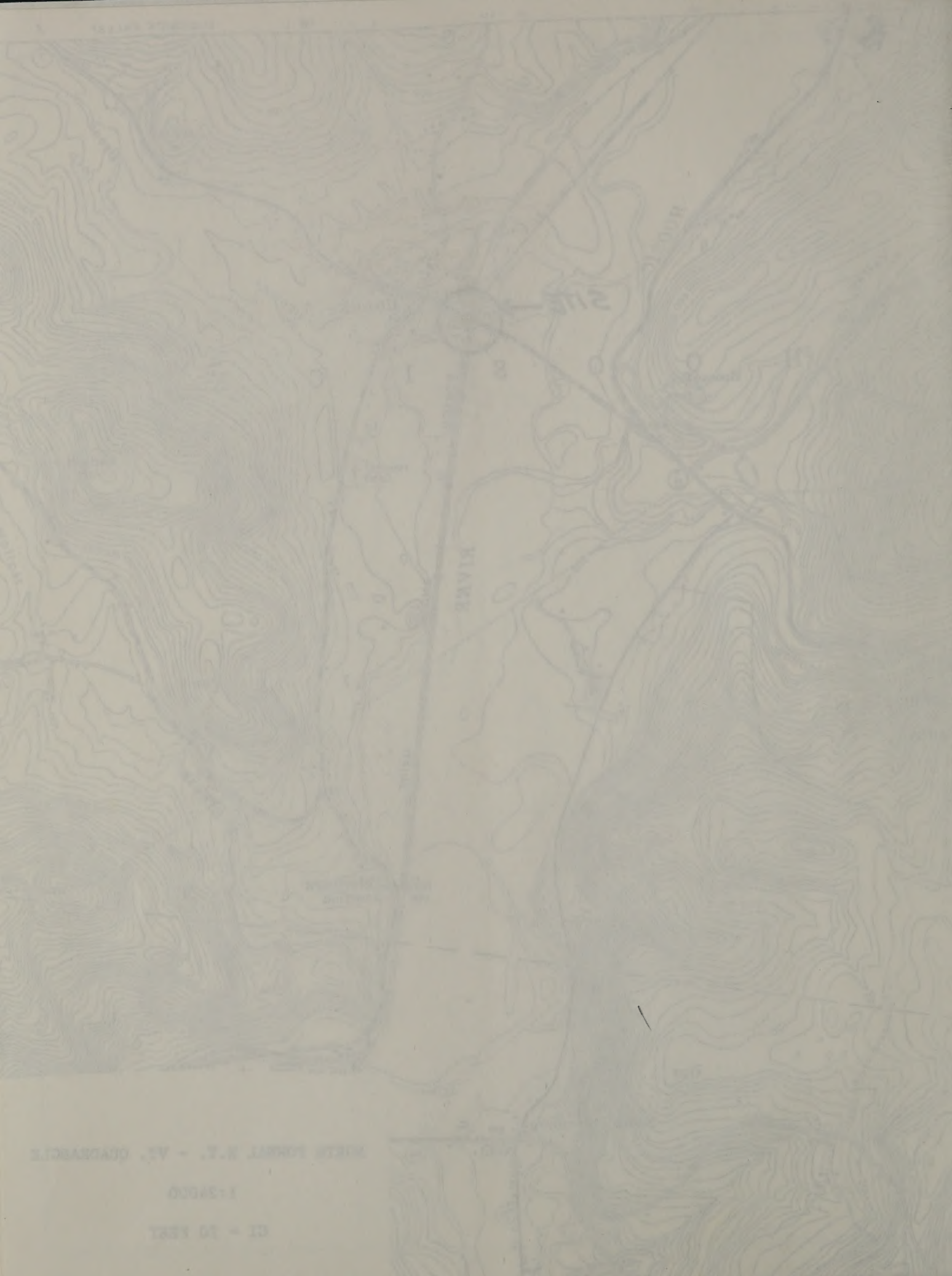

NEW YORK STATE
DEPARTMENT OF TRANSPORTATION
Region Boundaries
Region Offices
Region Numbers
PROJECT LOCATION
LAKE ONTARIO
LAKE ERIE
PENNSYLVANIA
NEW JERSEY
CONNECTICUT
MASSACHUSETTS
LONG ISLAND SOUND
ATLANTIC OCEAN
JEFFERSON
WATERTOWN
ST. LAWRENCE
FRANKLIN
CLINTON
ESSEX
LEWIS
HAMILTON
WARREN
WASHINGTON
OSWEGO
ONEIDA
UTICA
HERKIMER
FULTON
SARATOGA
ORLEANS
ROCHESTER
NIAGARA
BUFFALO
GENESEE
MONROE
WAYNE
SYRACUSE
ONONDAGA
SENECA
ONTARIO
MADISON
MONTGOMERY
SCHENECTADY
RENSSELAER
ALBANY
WYOMING
ERIE
LIVINGSTON
YATES
CAYUGA
CORTLAND
CHENANGO
OTSEGO
SCHOHARIE
ALBANY
GREENE
CHAUTAUQUA
ALLEGANY
HORNELL
SCHUYLER
TOMPKINS
TIOGA
BROOME
BINGHAMTON
DELAWARE
CHEMUNG
STEUBEN
CATTARAUGUS
COLUMBIA
ULSTER
POUGHKEEPSIE
DUTCHESS
SULLIVAN
PUTNAM
ORANGE
WESTCHESTER
ROCKLAND
BRONX
NEW YORK
KINGS
QUEENS
NASSAU
SUFFOLK
HAUPPAUGE
RICHMOND
1
2
3
4
5
6
7
8
9
10
11
5/82

NORTH POWNAL N.Y. - VT. QUADRANGLE

1:24000

CI = 20 FEET



DESCRIPTION

This project consisted of replacing the existing Route 7 structure over the Boston and Maine Railroad. The gradeline for the west approach to the new structure was raised approximately two (2) feet and the approach embankment was extended approximately fifty (50) feet. The width of the existing structure was approximately thirty (30) feet, while the width of the new structure is approximately forty four (44) feet. This resulted in the encroachment of an access road to an Agway Store in the southwest quadrant of the structure/railroad crossing. In order to maintain this access road a Sta-Wal was designed in this area to minimize the R.O.W. encroachment.

FOUNDATION CONDITIONS

Four borings, numbered DAB-1, DAB-3, DAB-5 and UDH-B-7 were progressed in the vicinity of the west approach embankment. The foundation soils consisted of fourteen (14)± feet of gravelly silt, sandy over seventy five (75) feet of very soft clayey silt/silty clay over till.

DESIGN INVESTIGATION

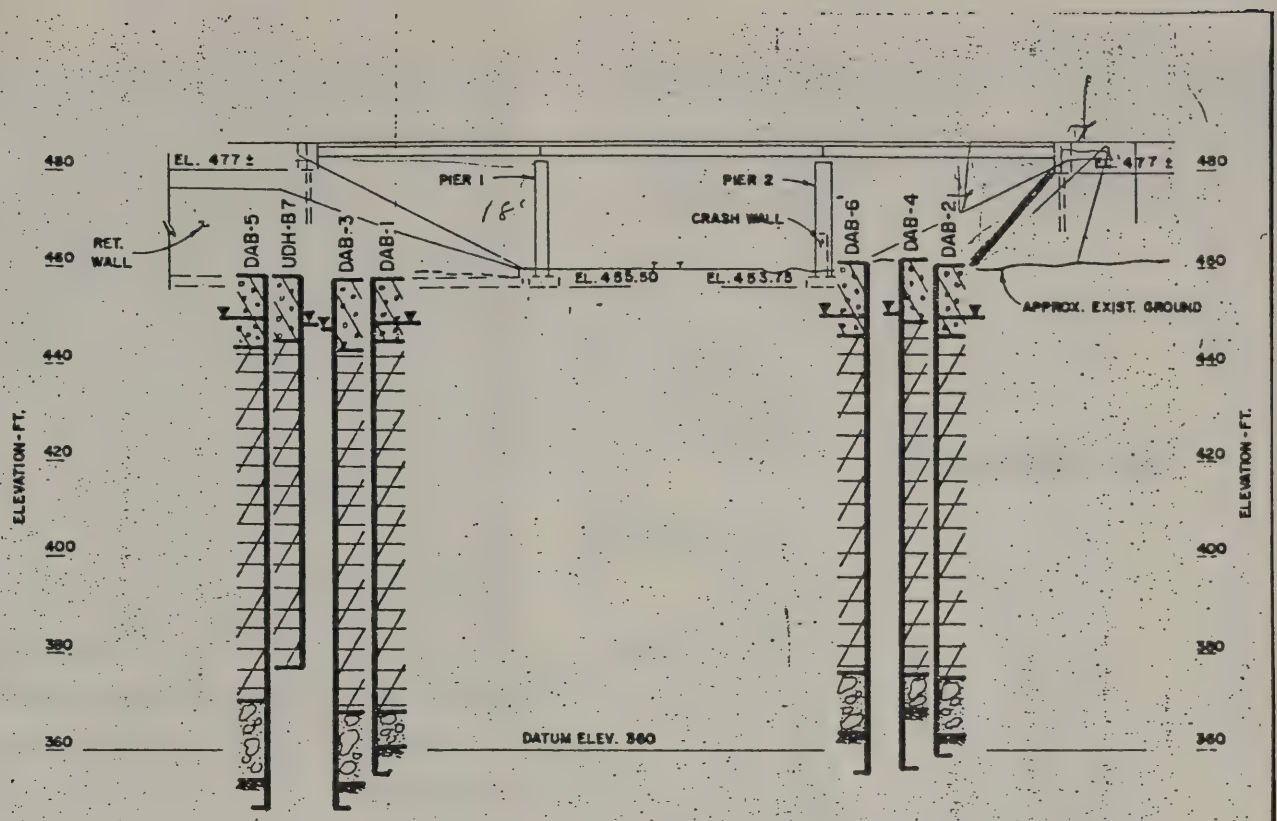
Based on an analysis of the laboratory testing it was decided that with a safety factor of 1.72 stability was not a problem. The estimated settlements for the new portion of the embankment were in the order of six (6) inches with three and one-half (3½) inches at the Sta-Wal. Approximately half of the wall settlement would occur during construction with the remainder occurring later. The area was to be instrumented with manometers and a maximum four (4) month waiting period was included.

CONSTRUCTION

The approach embankments and Sta-Wal were construction without any difficulty. However, in the fall of 1985 the Engineer-In-Charge noticed some hairline cracking in some Sta-Wal panels. In the summer of 1986 we were asked to review the situation. After an inspection by personnel from this Bureau it was determined that the cracking was insignificant and did not endanger the integrity of the wall. This opinion was reinforced by the fact that the cracks did not increase in size between the fall of 1985 and the summer of 1986. The settlements at the abutment were approximately four and one half (4½) inches and the settlements at the wall location were approximately two (2) inches.

CONCLUSIONS

It is assumed that the maximum settlement occurred at the highest section of wall with differential settlements being in the range of one quarter (¼) to one half (½) inches over 30 ft. length of wall. Based on the information available, it is our opinion that the cracking of the panels was not the result of the differential settlements that occurred.



SECTION A-A

BORINGS PROJECTED TO SECTION LINE PARALLEL WITH ℄ BEARINGS
SCALE: 1"=20'

SYMBOLS

DRILL HOLE — DAB, UDH

OBSERVED WATER LEVEL

Loose to Medium Compact Brown Gravelly Silt, Sandy.

Very Soft Gray Layered Clayey Silt and Silty Clay.

Compact to Very Compact Grey Gravelly Silt, Clayey with Shale Chips.

LEDGEROCK

APPROVED 2/28, 1984
W. P. Moody
DIRECTOR
SOIL MECHANICS BUREAU

REGION NO. 1
COUNTY RENSSELAER
DWG. NO. 1 SM 2218

STATE OF NEW YORK
DEPARTMENT OF TRANSPORTATION
TECHNICAL SERVICES DIVISION

ROUTE 7 OVER B&M RAILROAD

SUBSURFACE PROFILE

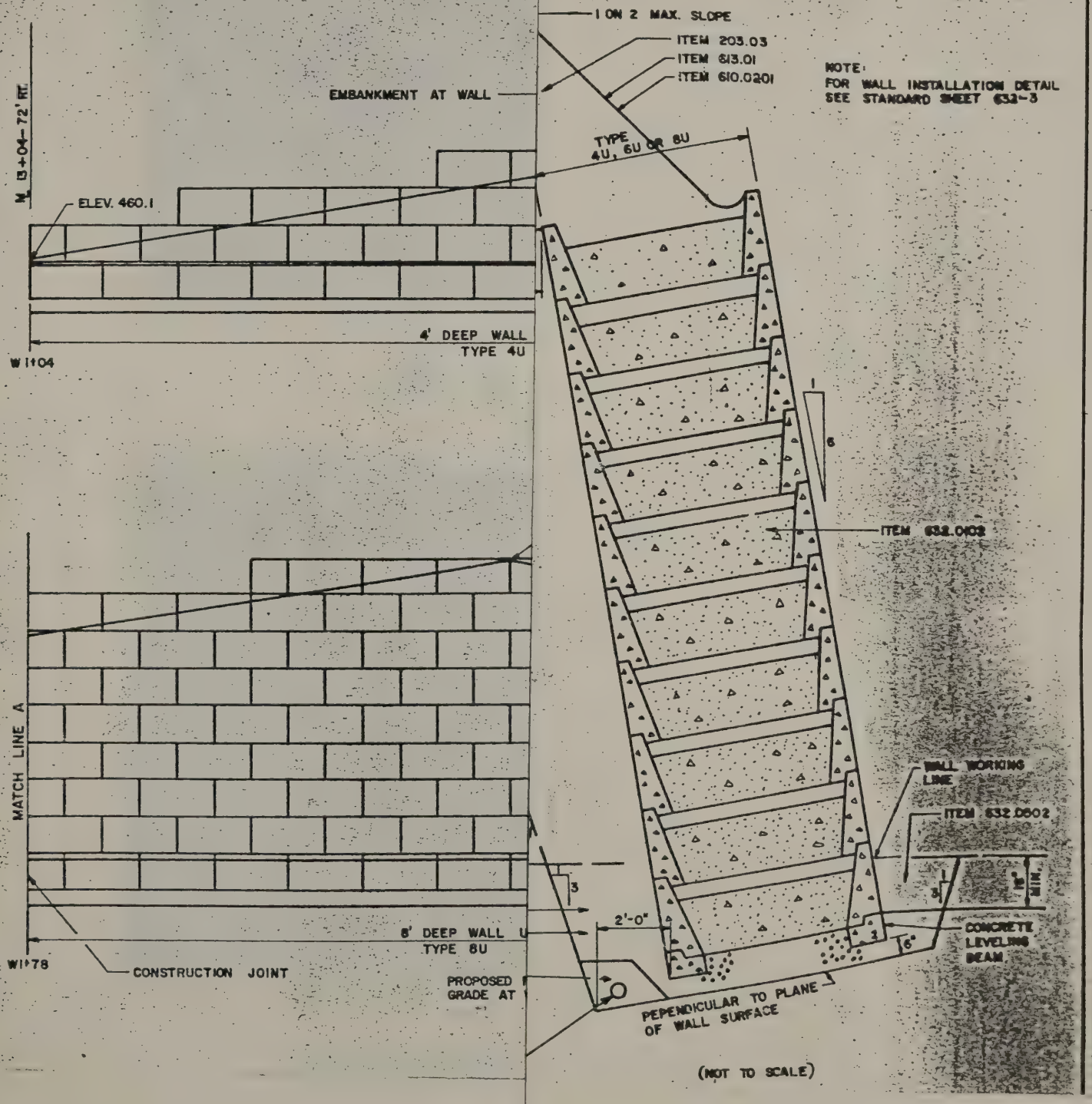
DRAWING 3 OF 22

D251198

FED. ROAD REG. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.	TOTAL SHEETS
1	N.Y.	BRF-149(6)	35	62

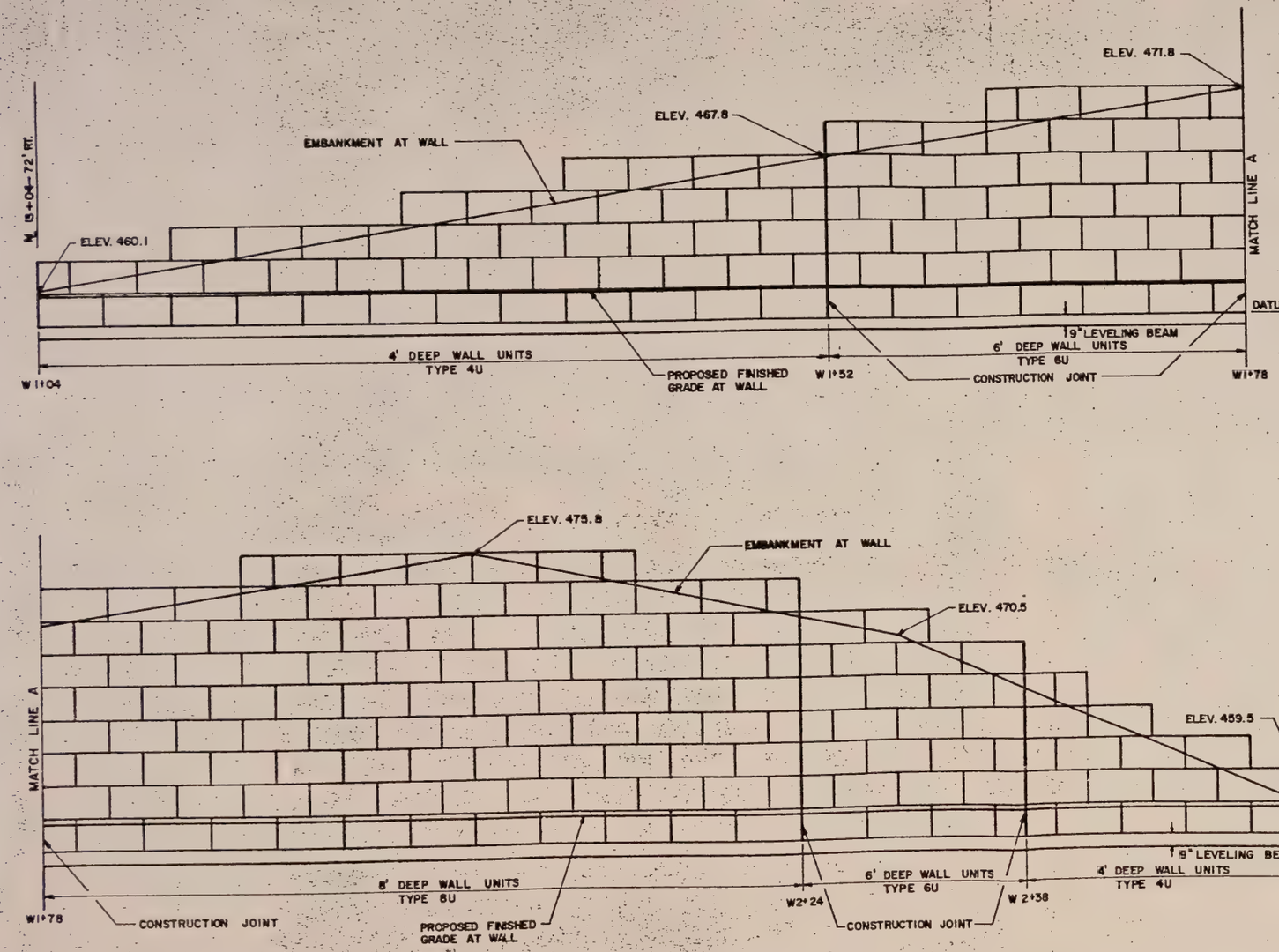
ROUTE 7 OVER THE B. & M. RAILROAD

TOWN OF HOOSICK RENSSELAER COUNTY

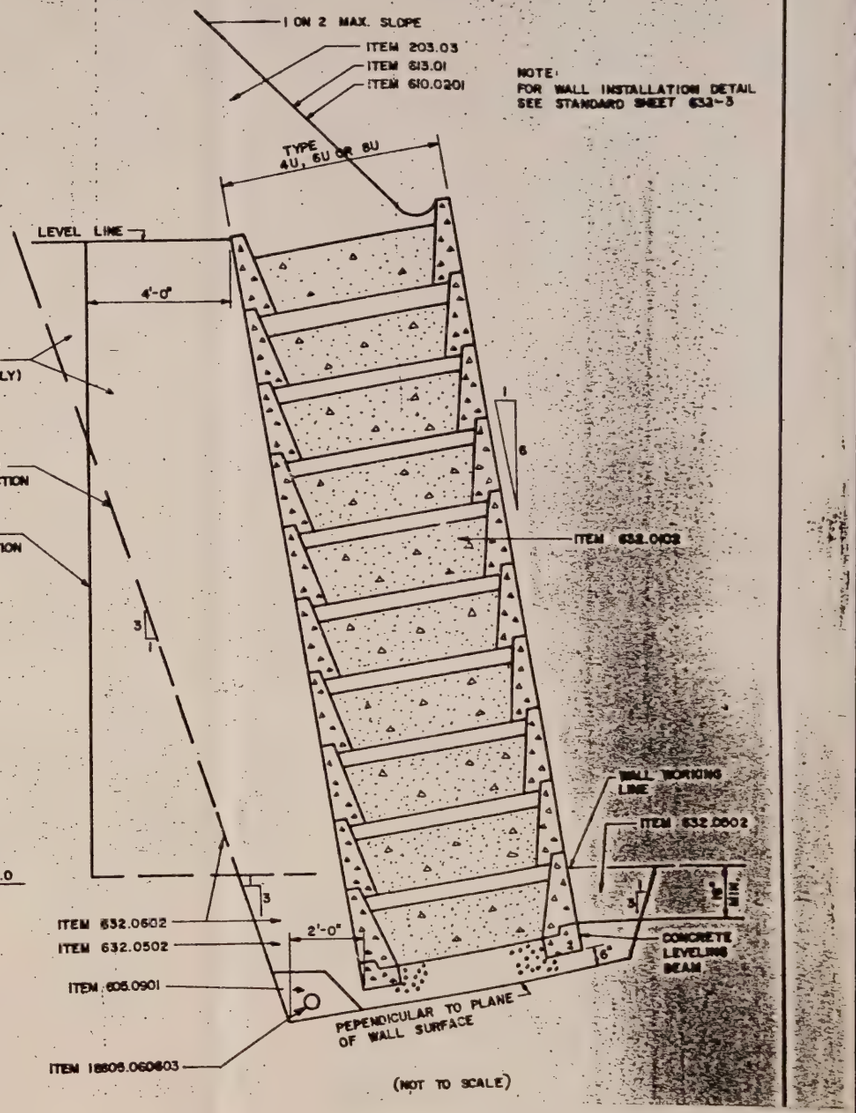


D251198

FED. ROAD REG. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.	TOTAL SHEETS
1	N.Y.	BRF-140(6)	35	62
ROUTE 7 OVER THE B. & M. RAILROAD				
TOWN OF HOOSICK		RENSSELAER COUNTY		



SCALE 1"=4' HORIZ. AND VERT.



NOTE:
FOR WALL INSTALLATION DETAIL SEE STANDARD SHEET 653-3

(NOT TO SCALE)

OVERALL VIEW LOOKING EAST

CLOSEUP OF ROUTED AND SEALED CRACKS

00446
LRI